Medical student anxiety in caring for dying patients and their family: a cross-sectional study

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Title:

Medical student anxiety in caring for dying patients and their family: A cross-sectional study

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What is already known about the topic

- Newly qualified doctors experience significant anxiety in relation to caring for dying patients and their families (thanatophobia)
- Whilst studies have looked at death anxiety amongst other healthcare trainees, very little is known about the level of anxiety experienced by medical students and what factors may affect this.

What this paper adds

- The level of anxiety experienced by final year medical students does not differ in comparison to those students at the start of their medical degree.
- Older medical students possess a lower level of thanatophobia.
- Gender identity and degree status do not influence thanatophobia level.

Implications for practice, theory or policy

- If we hope to reduce newly qualified doctors' anxieties in looking after dying patients, we need to do more to recognise and address thanatophobia earlier on within undergraduate medical education.
- Medical schools should be prompted to review their palliative and end of life curricula, and consider introducing the concepts of end of life care earlier in the course.

Abstract (250 words)

Background: Of all qualified doctors, Foundation Year 1 (FY1) trainees spend the most amount of time with dying patients. Annual feedback demonstrates that many feel poorly prepared and anxious when caring for dying patients.

Aim: To investigate the extent to which medical students report anxiety in relation to caring for a dying patient and their family, and identify what factors may influence this.

Design: We conducted a cross-sectional survey in a UK medical school to measure medical student anxiety using the validated Thanatophobia Scale questionnaire.

Results: A total of 332 completed Thanatophobia Scale questionnaires were returned. Most respondents were female (67.4%), and did not have a previous undergraduate degree (56%). Median student age was 22 (IQR 20-24). Year of study exerted the most significant influence on thanatophobia score, with 2nd year students displaying an increase in mean score of 6.088 (CI 3.778 – 8.398, p<.001). There was no significant difference seen between final year and 1st year thanatophobia scores. For a 1-year increase in student age, reduction in mean score of -0.282 was observed (CI -0.473 - -0.091, p=.004). Degree status and gender identity exerted no significant effect on thanatophobia score.

Conclusion: By the end of training, medical student anxiety to care for the dying does not differ from that observed at the start of the course. Recognising this anxiety earlier in undergraduate training will give medical schools the opportunity to address students' fears and concerns, and better prepare our future doctors for their role in caring for our dying patients and their families.

Keywords

Palliative care, medical students, thanatophobia, anxiety, dying,

Background

Provision of basic palliative care is the responsibility of every doctor, [1] and of all qualified doctors it is the most junior members who spend the greatest time with dying patients. [2] The General Medical Council (GMC) publish clear recommendations that all medical students should receive core teaching on how to care for the dying. [3, 4] Despite this, Foundation Year 1 (FY1) doctors feel poorly prepared to deliver basic palliative care, and in some cases report high levels of anxiety when doing so. [2, 5-8] Literature suggests undergraduate medical education continues to adopt a paternalistic approach to clinical teaching of care of the dying, with some students finding they are kept away from dying patients by senior healthcare staff - often excluded from bedside reviews of moribund patients on teaching ward rounds.[2] Students feel they are expected to clerk and present those patients deemed by senior doctors to be more interesting and demonstrating 'better' clinical signs as this will allow students to pass their exams, all the while recognising that palliative care is unlikely to feature in medical school examinations.[9, 10] As a result, teaching on the care of dying patients and those with palliative care needs is sometimes overlooked. [2]

This issue is not unique within undergraduate medicine. Of all healthcare professionals, nurses spend the most time with dying patients, and yet many nurses do not gain experience how to care for the dying until after they have qualified.[11] A 2016 cross-sectional study of UK nursing students found that whilst 90% of the study's 567 participants demonstrated positive attitudes towards care of the dying, over a third of participants expressed a need for more education in palliative care. Higher scores (equating to a more positive attitude) were found in third year students (compared to 1st year students, CI=0.36-4.01, p=.017), and in those who had been directly involved in providing nursing care to dying patients (CI=1.09-4.08, p=.002). No significant differences in attitude were demonstrated as a result of age or gender identity. [12]

The aim of this study was to assess the extent to which medical students reported anxiety towards caring for a dying person and their family (thanatophobia) using a cross sectional survey, testing for any correlation between anxiety level and variables of year of study, age, gender identity and degree status.

Methods

Study design

This was a cross-sectional survey using a validated self-completion questionnaire.

Participants and setting

This study was conducted at medical school located on the south coast of England. The aim was to recruit a study population approximately representative of medical students in other UK medical schools. A convenience sampling approach was taken, with any student studying in years 1-5 of the undergraduate medical course eligible to participate, other than those who were intercalating or intermitting.

Procedure

The primary researcher contacted faculty administrators to determine the times and locations at which all students would be together in compulsory year-group lectures. Once potential dates were identified the primary researcher contacted corresponding lecturers to request permission to attend their lecture, at which details of the study would be explained to the students along with a request for their participation. Paper questionnaires were handed out to students, with the primary researcher returning at the end of the lecture to collect completed questionnaires. This process was followed for year groups 1-4. Collection of data from 5th year cohort differed as students in this year would not be together as a cohort until final examinations took place. One third of 5th year students were contacted at a mandatory sub-group lecture in the same manner as for years 1-4. The remaining two-thirds of 5th year students were contacted by their university email accounts and asked to complete and return the questionnaire electronically. Email responses were printed off and original emails deleted to maintain anonymity. For all study participants consent was assumed for those who returned a completed study questionnaire, with no additional written consent deemed necessary as agreed with the university research, governance, and ethics committee (RGEC, ref ER/BSMS9BC3/2, granted 28/1/2019). All questionnaire data was collected in February 2019.

Data sources/questionnaire

The Thanatophobia Scale (TS) questionnaire [13] was the tool used to collect data in this study. The TS questionnaire contains seven statements designed to measure healthcare professionals' attitudes towards caring for a dying patient and their family. Each statement poses a negative attitude to the respondent, who is required to indicate to what level they agree or disagree with each statement by assigning a score on a Likert scale between 1 (strongly disagree) to 7 (strongly agree). Once completed, a potential total score of between 7 (corresponding to a low degree of thanatophobia) to 49 (corresponding to a high degree of thanatophobia) will result. We were interested in identifying any changes in mean TS score as a result of explanatory variables, rather than look at the individual values in isolation. This is important as there is no consensus within the literature as to what score would classify someone as possessing a low, medium or high level of anxiety in relation to caring for dying patients.

The TS questionnaire used in this study has been validated for use in medical students by Mason and Ellershaw (2004). [14] They found the original TS questionnaire was worded in such a way that it was not valid for use with medical students. During the validation process it was discovered that despite students being asked to 'imagine' how they might feel when deciding their score for each question, some students still felt unable to answer the questions due to lack of clinical experience. Taking this (and RGEC recommendations) into consideration the primary researcher adapted questions to reflect a future tense with the aim of putting the questions into a context that was more relatable to undergraduate trainees.

Variables

Each year group received a questionnaire pre-labelled with their specific year of study to facilitate easy collation of questionnaires for analysis. To maintain anonymity students were asked not to put any personally identifiable data on their questionnaires. Students were also asked to indicate their age (years), gender identity (male/female/other), and undergraduate degree status (yes/no).

Bias

To reduce selection bias students were addressed at compulsory cohort lectures. It was explained to students that their participation was voluntary, anonymous and that their decision to participate would not affect their assessment grades. There was no financial incentive to participate.

Statistical Analysis

Descriptive statistics were used to summarise both continuous (age) and categorical data (gender identity, degree status, year of study). Data distribution was examined for normality through creation and visualisation of PP and QQ plots. Means and standard deviations are reported for normally distributed variables, medians and interquartile ranges reported for non-normally distributed variables, and proportions and percentages reported for categorical variables.

Statistical modelling was used to analyse the relationship between the explanatory variables of year of study, age, gender identity, and degree status with the outcome variable of TS score. Multiple linear regression using the entry method allowed for all variables to be entered into the model as they each had the potential to exert an effect on the dependent variable (TS score). [15]

To test for measurement accuracy, 10% of completed questionnaires were randomly selected by an independent reviewer who tabulated raw results for comparison with those measured by the primary researcher.

All data were analysed using IBM SPSS Statistics for Windows, Version 25.0. [16]

Results *Descriptive data*

A total of 332 Thanatophobia Scale (TS) questionnaires were completed out of an eligible student population of 715, representing a return rate of 46.4%. Independent measurement of 35 questionnaires (10.5%) yielded identical results to those measured by the primary researcher.

Table 1 displays responses by study year. Although the greatest number of questionnaires were returned from year 1 students (n=79), the greatest proportion of

responses were returned from year 2 students (n=77, 57.9%). The year 5 cohort returned the least number and proportion of questionnaires (n=45, 28.7%).

Table 2 displays all completed demographic data. The median student age was 22 (range 17-52), with no difference in age seen as a result of gender identity. All participants identified either as female (67.4%) or male (32.6%) which was representative of the gender ratio observed in the study population as a whole. A total of 140 students (44%) had already obtained an undergraduate degree.

Missing data

Seventeen questionnaires (5.1%) contained missing data. Two studies (0.6%) were missing a single thanatophobia score. The study team agreed this represented a low level of missing data, therefore we statistically imputed missing scores using the mean score obtained from the remaining six questions within the individual questionnaires.

The remaining 15 studies (4.5%) were missing some or all demographic data, therefore questionnaire scores could only be analysed for those variables for which data was available.

Significant findings

The most significant influence on TS score was related to year of study (Figure 1). Each year was compared to reference year 1, results demonstrating that being a second year student increases mean TS score by 6.088 (CI 3.778 – 8.398, p<.001) (Table 3). This provides strong evidence that second year students possess a higher degree of thanatophobia than that of their peers in any of the other year groups.

Participant age exerted a small but significant influence on TS score (Figure 2). For an increase in age of 1 year, the TS score changed by -0.282 (CI -0.473 - -0.091, p=.004). This provides strong evidence that for every 3.5-year increase in age, the TS score will fall by 1 point (2.5%), corresponding to a lower level of thanatophobia. However as Figure 2 shows, the linear relationship (r^2= 0.073) demonstrates a very weak effect size in this context.

Discussion

Principal findings

The results of our study have demonstrated that anxiety in relation to caring for a dying patient and their family is greatest amongst younger students. Whilst second year students demonstrate a statistically significant increase in thanatophobia compared to any other year group, overall medical student anxiety in the final year of training does not significantly change when compared to levels reported at the start of the course. Our study found that degree status and gender identity had no significant effect on student thanatophobia.

Thanatophobia is not an uncommon finding amongst medical students. Earlier studies have demonstrated that a greater degree of fear and anxiety is seen in medical students when compared to that of other healthcare colleagues (student nurses, nurses, qualified senior doctors).[17] One reason as to why medical students and junior doctors experience a comparatively greater fear towards death and dying may be due to differences in expectations between professional groups. It has been suggested that medical students often follow a biomedical model of disease, with the expectation of curing their patients, whereas nursing colleagues tend to focus on the individual patients' problems as caused by the underlying disease without necessarily expecting curative intent. [13]

Our findings in relation to age echo those found in studies conducted both in the UK and USA which demonstrate that a lower level of thanatophobia is seen amongst older medical students, with exposure to different life experiences cited as a potential explanatory factor. [13, 18] Although we did not use the same measurement tool as these studies, it is possible that such exposure could explain the lower anxiety seen in older students in our study. A more recent (2019) Korean study exploring attitudes towards end of life care amongst medical students found that whilst differences as a result of gender identity were inconsistent, older students (greater than 26 years old) and graduates were statistically more interested in end of life care in general,[19] which again could be influencing TS score.

Results of early studies into medical student attitudes on death have shown that clinical placement can have a positive effect on students' fear of the death of others. [20] This suggests that exposure to dying patients has the potential to positively

change attitudes towards death and dying, and may provide an explanation as to why the second year group at our university possess a higher degree of thanatophobia. This cohort will have experienced 2 years of training with limited patient contact in relation to years 3-5, and their anticipation of the change they will experience with increased clinical exposure may lead to feelings of increased anxiety. It would be interesting to see if, as a cohort, they are increasingly anxious about other aspects of clinical care such as prescribing practice, diagnostics or medical management of common conditions in order to identify whether their anxiety is more generic rather than subject specific. Any future studies could control for general anxiety in their data analysis.

Another perspective in relation to the findings between year groups is whether the first-year cohort may have an unusually low level of thanatophobia, therefore making the second-year cohort appear higher in comparison. This could be the result of a lack of self-awareness about death and dying. This would make sense as the first year cohort in our study will have received no palliative or end of life care teaching when the questionnaires were distributed.

Strengths and limitations

There has been very little documented about thanatophobia amongst medical students in the UK, and how this changes as students' progress through medical school. One previous study of students in a large UK medical school found overall death anxiety levels remained stable throughout the length of their medical course..[21] However, the study did not measure responses from their 2nd year cohort so it is difficult to make direct comparisons to our findings.

Results of our study will add a greater understanding of thanatophobia within medical students to the current literature, particularly in relation to our variables of age, gender identity, degree status, and year of study. We aimed for participants in this study to be as representative as possible to the UK undergraduate medical student population. One of the strengths of this study is that all data were collected within a 2-week time period, so as to provide a genuine snap-shot view of the independent variables being measured.

A further strength of this study is the fact that the TS questionnaire has previously been validated for use in medical undergraduates, and was the main justification for

using this scale. A second benefit is that it takes just 5 minutes to complete, therefore study researchers felt students would be more likely to complete it than a longer alternative questionnaire.

This study is not without limitations. Our study population of 332 students is relatively low in comparison to other published studies looking at thanatophobia amongst other healthcare workers, Despite the second year group returning the greatest proportion of results of any other year (57.9%), there were still only 77 completed questionnaires. This number may be small enough to allow for statistical errors to occur affecting the overall result. Furthermore, we only received 45 questionnaires back from the 5th year cohort, which will also impact data analysis and findings.

Opportunities existed to gather additional data such as student ethnicity, religion or whether students have had previous encounters with death. However, a pragmatic approach was taken not to gather an endless number of variables, as this would mean the questionnaires would take longer to complete, and increasing variables may create analytical challenges with statistical modelling.

Implications for practice

A recent UK-wide survey identifying undergraduate palliative care teaching provision continues to find inconsistencies between university curricula, with a heavy reliance on clinical placement to provide exposure and teaching on care of the dying.[22] The UK is not alone, with a 2014 survey of American medical schools finding general inconsistencies in terms of type and amount of palliative care teaching provided. [23]

Studies suggest that care of the dying is a skill most likely to be developed in the post-graduate setting.[5, 24] This needs to change, because simply accepting this to be the case will create barriers to dealing with junior doctor anxiety, and will provide little comfort and support to the newly qualified FY1 doctor or the dying patient they are caring for. It is important for medical schools to recognise concerns around provision of care to the dying within their undergraduate student population, and seek opportunities to reform their curricula so that these anxieties can be open to further exploration and management.

Unanswered questions and further research

Although multivariate analysis will correct for some of the differences between cohorts of students, it will only have corrected for those variables measured. To build upon this study, the next step would be to follow the same year group through all 5 years of medical school, measuring their thanatophobia level on an annual basis. Cohort differences could then be kept to a minimum thus further reducing any bias when analysing any observed changes in TS score, allowing clearer comparisons in TS score to be made.

What needs to be ascertained is whether addressing thanatophobia at undergraduate level has a positive impact on FY1 anxiety to care for the dying, and whether this translates into improved patient care. Future studies could look at addressing thanatophobia within a final year cohort and identify whether FY1 feedback from the same individuals differs to that of a control group.

Conclusion

By the end of medical school training, level of thanatophobia experienced by students does not significantly differ from that experienced in the first year of study. Whilst it may be reasonable to experience some anxiety when thinking about caring for someone who is dying, especially given the degree of uncertainty involved in this area of patient care, medical schools could do more to identify and explore thanatophobia with their students. This may then afford students the ability to understand why they may experience thanatophobia, normalise it, and know when to recognise if it is becoming problematic at an individual level. By addressing this anxiety earlier on it is hoped that students develop coping strategies as they enter their FY1 year.

Authorship

Dr Geoffrey Wells is the corresponding author and primary researcher. Geoffrey has been involved in every aspect of this study from initial conception, data collection, analysis, and development of this paper.

Professor Carrie Llewellyn is one of the primary supervisors of the corresponding author. She has advised on all aspects of data collection, analysis, and interpretation. She has reviewed and edited this paper prior to submission.

Professor Juliet Wright is one of the primary supervisors of the corresponding author. She has overseen this study, providing the resources to allow the study to be undertaken. She has advised the primary researcher with respect to obtaining ethical approval, and has supported the study at every stage. She has also reviewed and edited this paper prior to submission

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Declaration of conflicting interests

None declared

Research ethics and consent

Permission to undertake this study was granted by the Brighton and Sussex Medical School Research Governance and Ethics Committee on 28th January 2019 (ref ER/BSMS9BC3/2)

Data management and sharing

Study data, questionnaires and statistical analysis can be obtained through contact with the corresponding author, Dr Geoffrey Wells.

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Table 1: Thanatophobia Scale questionnaires returned by each student year

Study year	Total number of students in year	Total number of questionnaires returned	Percentage representation
1	161	79	49.1%
2	133	77	57.9%
3	141	61	43.3%
4	123	70	56.9%
5	157	45	28.7%

Table 2: Student demographics

Variable		**N (%) [a]**
Age		mean = 23.2 (SD 4.84) median = 22 (IQR 20-24)
Age range		17-52
Gender identity	Male	104 (32.6)
	Female	215 (67.4)
Previous degree	Yes	140 (44.0)
	No	178 (56.0)
[a] Unless otherwise stated		

Table 3. Multivariate analysis of Thanatophobia Scale (TS) score

Independent variable	Unstandardised Coefficient	Standardised Beta Coefficient	95% Confidence Interval	*p*-value
Age	-0.282	-0.174	-0.473 – -0.091	0.004
Gender identity	1.477	0.088	-0.210 – 3.164	0.086
Previous degree	-1.176	-0.075	-3.026 – 0.674	0.212
Year 2	6.088	0.326	3.778 – 8.398	<0.001
Year 3	1.969	0.096	-0.540 – 4.478	0.124
Year 4	-0.115	-0.006	-2.548 – 2.317	0.926
Year 5	-0.409	-0.018	-3.302 – 2.485	0.781

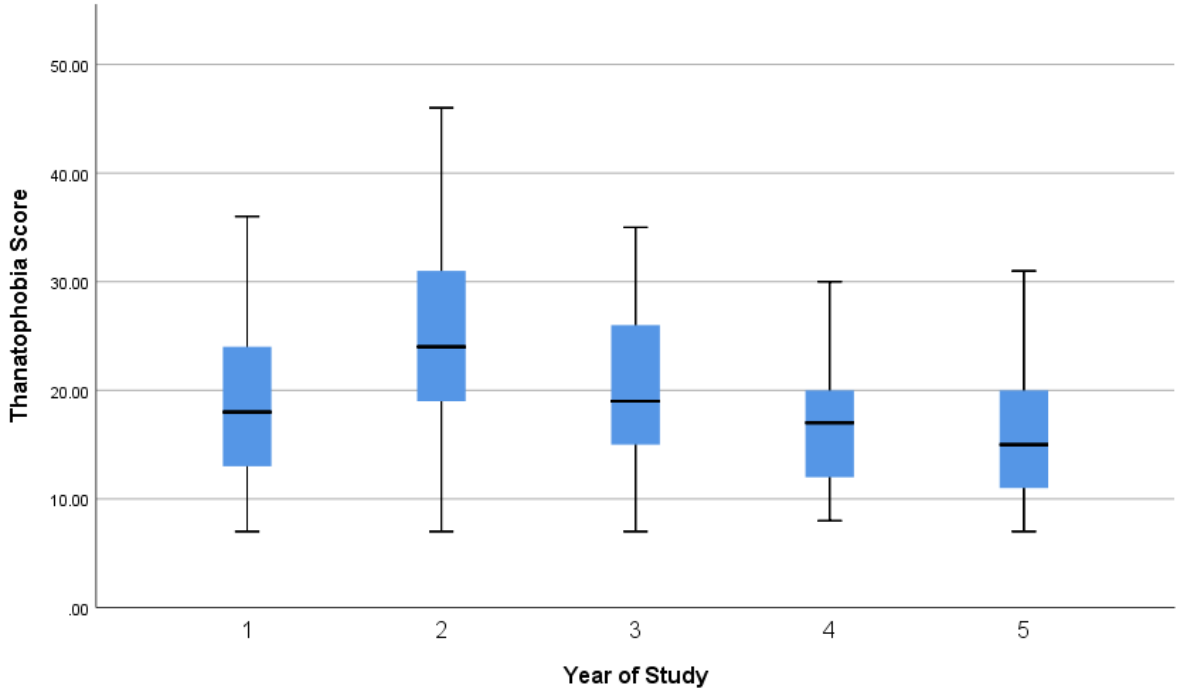

Figure 1: Boxplot of Thanatophobia Scores

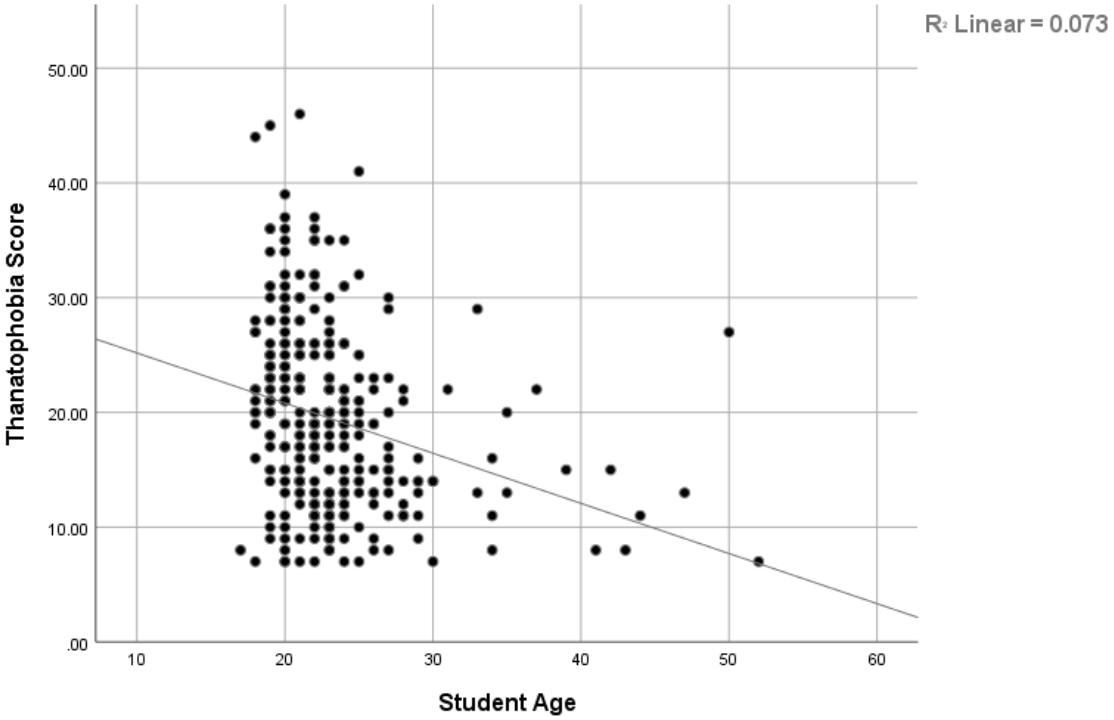

Figure 2: Scatter plot of relationship between age and thanatophobia

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